

CLAIMS

1. Machining system (SYS) for the machining of workpieces, in particular of workpieces located on a production line, comprising:

- a) a large number of tool units, each with an electrically controllable machining tool and a holding unit;
- b) a sliding support mechanism in which the holding units are held in sequence, whereby the holding units are held in the sliding support mechanism in such a way that they can slide; and
- c) a large number of control units for setting an individual machining tool to a set of predefined machining parameters in order to execute a predefined machining process;

characterised in that

- d) each tool unit includes a position determining unit, which determines the position of the individual tool unit along the sliding support mechanism;
- e) the control unit is part of the tool unit; and
- f) the control unit sets the individual machining tool to a particular set of machining parameters according to the position of the tool unit determined by the position determining unit.

2. Machining system according to claim 1,

characterised in that

a large number of machining parameter sets, each assigned to specific position ranges of the tool unit, are stored in the control units for the individual tool units.

3. Machining system according to claim 1 or 2,
characterised in that
a central processing unit is provided, which sets the machining parameter sets in the individual control units.
4. Machining system according to claim 2 and 3,
characterised in that
when a new tool unit is added to the sliding support mechanism, the central processing unit reconfigures the machining parameter sets and/or the position ranges.
5. Machining system according to claim 1,
characterised in that
a power supply system is provided to supply power to the control units, whereby the power supply system is part of the sliding support mechanism and the sliding support mechanism and the holding units are designed in such a way that electrical power is at least supplied to the control unit for the tool units, regardless of the position of the tool unit.
6. Machining system according to claim 1,
characterised in that
the sliding support mechanism is a roller rail and the holding unit is a travelling box suspended in the holding rail.
7. Machining system according to claim 6 and 5,
characterised in that
a current conductor is integrated into the roller rail and the travelling boxes include a current collecting device to take current and supply it to the individual control unit.
8. Machining system according to claim 1,
characterised in that

the position determining device determines the relative distance to a reference point along the sliding support mechanism.

9. Machining system according to claim 8 and 6,
characterised in that
at least a part of the roller rail is formed from a conductive material, the central processing system applies a preset measuring voltage to the conductive part and the position determining device measures the voltage drop along the busbar in order to determine the position.
10. Machining system according to claim 8 and 6,
characterised in that
a resistance measuring strip is integrated into the roller rail and the position measuring device measures the resistance along the busbar in order to determine the position.
11. Machining system according to claim 8 and 6,
characterised in that
the position determining device performs a laser distance measurement to the reference point in order to determine the position.
12. Machining system according to claim 1,
characterised in that
a workpiece position determining device is provided to determine the position of the individual workpieces on a production line above which the sliding support mechanism is provided.
13. Machining system according to claim 1,
characterised in that
the workpiece position determining device includes a workpiece speed detection device.
14. Machining system according to claim 1,
characterised in that

the central processing system supplies a predefined power to the power supply system.

15. Machining system according to claim 14,
characterised in that
the central processing system includes a voltage transformer.
16. Machining system according to claim 14,
characterised in that
each tool unit includes a voltage transformer.
17. Machining system according to claim 3,
characterised in that
the central processing system together with the individual control unit carries out settings via a radio or infrared interface.
18. Machining system according to claim 6,
characterised in that
the central processing system together with the individual control units sets the machining parameter sets by means of an integral data bus provided in the roller rail, whereby the travelling box includes a data receiving device to receive data from the data bus and to supply it to the individual control unit.
19. Machining system according to claim 6,
characterised in that
the central processing system together with the individual control units communicates via communication signals, which are modulated to the busbar.
20. Machining system according to claim 6,
characterised in that
the machining tool is a hand-operated single tool or a multiple machining tool.

21. Tool unit in a machining system (SYS) for the machining of workpieces, in particular of workpieces located on a production line, comprising:

- a) an electrically controllable machining tool; and
- b) a holding unit to be held in a sliding support mechanism in the machining system (SYS);

characterised in that

- c) a control unit is provided for setting the machining tool to a set of predefined machining parameters in order to execute a predefined machining process;
- d) each tool unit includes a position determining unit, which determines the position of the individual tool unit along the sliding support mechanism; and
- e) the control unit sets the individual machining tool to a particular set of machining parameters according to the position of the tool unit determined by the position determining unit.

22. Tool unit according to claim 20,

characterised in that

a large number of machining parameter sets, each assigned to specific position ranges of the tool unit, are stored in the control unit.

23. Tool unit according to claim 20,

characterised in that

the holding unit is a suspended travelling box.

24. Tool unit according to claim 23,

characterised in that

the travelling box includes a current collecting device.

25. Tool unit according to claim 20,
characterised in that
the position determining device determines the relative distance to a reference point along the sliding support mechanism.
26. Tool unit according to claim 20,
characterised in that
the position determining device measures the voltage drop or the resistance along a busbar in order to determine the position.
27. Tool unit according to claim 20,
characterised in that
the position determining device performs a laser distance measurement in order to determine the position.
28. Tool unit according to claim 6,
characterised in that
the machining tool is a hand-operated single tool or a multiple machining tool.
29. Tool unit according to claim 6,
characterised in that
an alarm system is provided in the control unit to issue an alarm if the control unit determines from the position determined by the position determining device that a position range violation has occurred.
30. Machining system according to claim 1,
characterised in that
an alarm system is provided in the control unit to issue an alarm if the control unit determines from the position determined by the position determining device that a position range violation has occurred.